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EXAMINER	
WON, MICHAEL YOUNG	

ART UNIT	PAPER NUMBER
2155	

DATE MAILED: 11/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	10/749,989	LIENHART ET AL.
	Examiner	Art Unit
	Michael Y. Won	2155

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 August 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-5,7-11,14-18 and 21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5,7-11,14-18 and 21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This action is in response to the Request for Continued Examination and Amendment filed August 28, 2006.

2. Claims 1, 8, and 15, have been amended and claims have been cancelled.

3. Claims 7-11, 14-18, and 21 have been examined and are pending with this action.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1-5, 7-11, 14-18, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bekritsky et al. (US 2002/0059535 A1) in view of Lovett et al. (US 6,591,370 B1).

<u>INDEPENDENT:</u>

As per ***claim 1***, *Bekritsky* teaches a method comprising:

recording a first node local time of receiving a wirelessly transmitted packet at a first node (see pg.1, [0006]: "The first arrival time is a time of reception of the reference data packets by a first receiving station"), the first node local time recorded with a monotonically increasing clock of the first node (see pg.2, [0015]: "a clock that runs independently from the clocks of the other receiving stations");

recording a second node local time of receiving the wirelessly transmitted packet at a second node (see pg.1, [0006]: "second arrival time is a time of reception of the reference data packets by a second receiving station"), the second node local time recorded with a monotonically increasing clock of the second node (see pg.2, [0015]: "a clock that runs independently from the clocks of the other receiving stations");

wirelessly transmitting (see pg.2, [0016]: "synchronize the clocks of receiving stations that cannot practically be wired together") the first node recorded local time by the first node to at least a second node (implicit: see pg.1, [0006]: "A first arrival time is compared to a second arrival time to determine a correlated arrival time data" and pg.2, [0019]: "the TDOA between two receivers A and B… is computed by subtracting the timestamp from the clock of station B from the timestamp of the clock of station A… correlated against each other");

receiving the first node recorded local time at the second node and recording the first node local time of receiving the wirelessly transmitted packet (implicit: see pg.1, [0013]: "The difference in time of arrival of the packet at any two of the receivers allows computation of a unique hyperbola in space"; pg.2, [0019]: "the TDOA between two receivers A and B… is computed by subtracting the timestamp from the clock of station

B from the timestamp of the clock of station A"; and pg.2, [0021]: "the clock of one of the receiving stations is used as a reference clock"); and

synchronizing a second node timing model with a first node timing model (see pg.2, [0016]: "synchronize the clocks of receiving stations that cannot practically be wired together"), wherein the first and second timing models are updated at predetermined speeds to provide controlled time intervals (see pg.2, [0021]: "continuously computed and updated according to the exemplary embodiment of the present invention" and pg.3, claim 6: "repeating the transmitting, comparing and computing steps to update synchronization of the internal clocks of the receiving stations at a predetermined rate").

Bekritsky does not explicitly teach of synchronizing the first and second node timing models with a global clock associated with the first node and the second node.

Lovett teaches of synchronizing the first and second node timing models with a global clock associated with the first node and the second node (see col.10, lines 6-8).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the system of *Bekritsky* in view of *Lovett* so that the first and second node timing models are synchronized with a global clock associated with the first node and the second node. One would be motivated to do so because *Lovett* teaches that by synchronizing to a global clock, local clock can by synchronized without affecting the operation of running clocks on other nodes", especially in situations when "it is often desirable to dynamically add a node or modify a partition after the local clocks

are reset" and would not be "acceptable to reset the local clocks in nodes that are already running" (see col.1, lines 48-62).

As per ***claim 8***, *Bekritsky* teaches a machine-readable medium having stored thereon sets of instructions which when executed by a machine cause the machine to:

record a first node local time of receiving a wirelessly transmitted packet at a first node (see pg.1, [0006]: "The first arrival time is a time of reception of the reference data packets by a first receiving station"), the first node local time recorded with a monotonically increasing clock of the first node (see pg.2, [0015]: "a clock that runs independently from the clocks of the other receiving stations");

record a second node local time of receiving the wirelessly transmitted packet at a second node (see pg.1, [0006]: "second arrival time is a time of reception of the reference data packets by a second receiving station"), the second node local time recorded with a monotonically increasing clock of the second node (see pg.2, [0015]: "a clock that runs independently from the clocks of the other receiving stations");

wirelessly transmit (see pg.2, [0016]: "synchronize the clocks of receiving stations that cannot practically be wired together") the first node recorded local time by the first node to at least a second node (implicit: see pg.1, [0006]: "A first arrival time is compared to a second arrival time to determine a correlated arrival time data" and pg.2, [0019]: "the TDOA between two receivers A and B... is computed by subtracting the timestamp from the clock of station B from the timestamp of the clock of station A... correlated against each other");

receive the first node recorded local time at the second node and record the first node local time of receiving the wirelessly transmitted packet (implicit: see pg.1, [0013]: "The difference in time of arrival of the packet at any two of the receivers allows computation of a unique hyperbola in space"; pg.2, [0019]: "the TDOA between two receivers A and B... is computed by subtracting the timestamp from the clock of station B from the timestamp of the clock of station A"; and pg.2, [0021]: "the clock of one of the receiving stations is used as a reference clock"); and

synchronizing a second node timing model with a first node timing model (see pg.2, [0016]: "synchronize the clocks of receiving stations that cannot practically be wired together"), wherein the first and second timing models are updated at predetermined speeds to provide controlled time intervals (see pg.2, [0021]: "continuously computed and updated according to the exemplary embodiment of the present invention" and pg.3, claim 6: "repeating the transmitting, comparing and computing steps to update synchronization of the internal clocks of the receiving stations at a predetermined rate").

Bekritsky does not explicitly teach of synchronizing the first and second node timing models with a global clock associated with the first node and the second node.

Lovett teaches of synchronizing the first and second node timing models with a global clock associated with the first node and the second node (see col.10, lines 6-8).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the system of *Bekritsky* in view of *Lovett* so that the first and second node timing models are synchronized with a global clock associated with

the first node and the second node. One would be motivated to do so because *Lovett* teaches that by synchronizing to a global clock, local clock can by synchronized without affecting the operation of running clocks on other nodes", especially in situations when "it is often desirable to dynamically add a node or modify a partition after the local clocks are reset" and would not be "acceptable to reset the local clocks in nodes that are already running" (see col.1, lines 48-62).

As per ***claim 15***, *Bekritsky* teaches a system comprising:

a first node to record a first node local time of receiving a wirelessly transmitted packet (see pg.1, [0006]: "The first arrival time is a time of reception of the reference data packets by a first receiving station"), the first node local time recorded with a monotonically increasing clock of the first node (see pg.2, [0015]: "a clock that runs independently from the clocks of the other receiving stations");

a second node to record a second node local time of receiving the wirelessly transmitted packet at the second node (see pg.1, [0006]: "second arrival time is a time of reception of the reference data packets by a second receiving station"), the second node local time recorded with a monotonically increasing clock of the second node (see pg.2, [0015]: "a clock that runs independently from the clocks of the other receiving stations");

the first node to wirelessly transmit (see pg.2, [0016]: "synchronize the clocks of receiving stations that cannot practically be wired together") the first node recorded local time to at least a second node (implicit: see pg.1, [0006]: "A first arrival time is

compared to a second arrival time to determine a correlated arrival time data" and pg.2, [0019]: "the TDOA between two receivers A and B... is computed by subtracting the timestamp from the clock of station B from the timestamp of the clock of station A... correlated against each other");

the second to receive the first node recorded local time and record the first node local time of receiving the wirelessly transmitted packet (implicit: see pg.1, [0013]: "The difference in time of arrival of the packet at any two of the receivers allows computation of a unique hyperbola in space"; pg.2, [0019]: "the TDOA between two receivers A and B... is computed by subtracting the timestamp from the clock of station B from the timestamp of the clock of station A"; and pg.2, [0021]: "the clock of one of the receiving stations is used as a reference clock"); and

the second node to synchronize a second node timing model with a first node timing model (see pg.2, [0016]: "synchronize the clocks of receiving stations that cannot practically be wired together"), wherein the first and second timing models are updated at predetermined speeds to provide controlled time intervals (see pg.2, [0021]: "continuously computed and updated according to the exemplary embodiment of the present invention" and pg.3, claim 6: "repeating the transmitting, comparing and computing steps to update synchronization of the internal clocks of the receiving stations at a predetermined rate").

Bekritsky does not explicitly teach of synchronizing the first and second node timing models with a global clock associated with the first node and the second node.

Lovett teaches of synchronizing the first and second node timing models with a global clock associated with the first node and the second node (see col.10, lines 6-8).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the system of *Bekritsky* in view of *Lovett* so that the first and second node timing models are synchronized with a global clock associated with the first node and the second node. One would be motivated to do so because *Lovett* teaches that by synchronizing to a global clock, local clock can by synchronized without affecting the operation of running clocks on other nodes", especially in situations when "it is often desirable to dynamically add a node or modify a partition after the local clocks are reset" and would not be "acceptable to reset the local clocks in nodes that are already running" (see col.1, lines 48-62).

DEPENDENT:

As per ***claims 2, 9, and 16***, which depend on claims 1, 8, and 15, respectively, *Bekritsky* further teaches wherein the wirelessly transmitted packet comprises a beacon transmitted from a wireless access point (see pg.1, [0006]: "A beacon transmits reference data packets at a known position" and pg.2, [0017]: "Such reference packets 22 may be created based on an 802.11x network standard and transmitted by access points").

As per ***claims 3, 10, and 17***, which depend on claims 1, 8, and 15, respectively, *Bekritsky* teaches of further including: synchronizing sample numbers of a multimedia

stream on the second node with the second node timing model, the second node timing model having been synchronized with the first node (see pg.2, [0021]).

As per ***claims 4, 11, and 18***, which depend on claims 3, 10, and 17, respectively, *Bekritsky* and *Lovett* further teach wherein the synchronization of sample numbers in I/O operations is performed by time-stamping IRQs request with a global time (see pg.2, [0017]: "Each receiving unit time-stamps the packets as they arrive"; [0021]: "the clock of one of the receiving stations is used as a reference clock, and all the clocks of the other receiving stations are corrected to match the frequency and start time of the reference clock"; and pg.3, [0024]: "time stamp is then adjusted to compensate for frequency offset and the random stat time of the internal clock") according to the global clock.

As per ***claim 5***, which depend on claims 1, *Bekritsky* teaches of further including repeating the method of claim 1 to generate an updated second node timing model to synchronize with the first node timing model (see pg.2, [0021]: " the slopes and intercepts are continuously computed and updated").

As per ***claims 7, 14, and 21***, which depend on claims 1, 8, and 15, respectively, *Bekritsky* teaches of further including:

recording a third node local time of receiving the wirelessly transmitted packet from the first node at a third node and recording the first node local time of receiving the wirelessly transmitted packet (see claim 1, 8, and 15 rejections above); and

synchronizing a third node timing model with the first node timing model and the second node timing model, and further synchronizing the first, second, and third node

timing models with the global clock associated with the first node, the second node, and the third node (see claim 1, 8, and 15 rejections above). **Note**: incorporating additional nodes performing the same functionality explicitly taught by *Bekritsky* and *Lovett*, do not make the invention novel and therefore does not overcome the prior art of reference.

Response to Arguments

5. Applicant's arguments with respect to the amended limitation of "wherein the first and second timing models are updated at predetermined speeds to provide controlled time intervals" as recited in the amended independent claims 1, 8, and 15, have been fully considered but they are not persuasive.

Bekritsky clearly teaches that the updating synchronization of the internal clocks of the receiving stations at a predetermined rate (see pg.3, claim 6).

Conclusion

6. For the reasons above claims 7-11, 14-18, and 21 have been rejected and remain pending.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Y. Won whose telephone number is 571-272-3993. The examiner can normally be reached on M-Th: 7AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Saleh Najjar can be reached on 571-272-4006. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Michael Won

November 8, 2006